

Student Conference in Finance 2019

Proceedings



Department of Finance
Faculty of Management Studies and Commerce
University of Sri Jayewardenepura
Nugegoda
Sri Lanka

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The Ideas expressed are the ideas of the authors and the department of Finance cannot be held responsible

@ Department of Finance

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Message from the Vice Chancellor

As the Vice Chancellor of the University of Sri Jayewardenepura, it gives me great pleasure to forward this message for the Third Student Conference in Finance organized by the Department of Finance, Faculty of Management Studies and Commerce, University of Sri Jayewardenepura.

The university has provided an academic environment which is conducive for maintaining quality teaching and learning together with innovative research in multiple disciplines. The Department of Finance from its inception has been active in research and development by encouraging students and scholars. This conference creates a platform for academicians, research scholars and students to discuss and disseminate knowledge on finance related developments.

The conference would not have been a reality without the immense efforts and commitment of the academic staff, I congratulate them and all the presenters of the Student Conference in Finance – 2019, who have successfully completed their final year Research Study and presented their findings at a scholarly gathering.

I wish the conference a grand success...!!

Senior Professor Sampath Amarathunge

Vice Chancellor
University of Sri Jayewardenepura



Message from the Dean

It is with great pleasure that I pen down these words on behalf of the “3rd Student Conference in Finance - 2019”. organized by the Department of Finance, Faculty of Management Studies and Commerce(FMSC), University of Sri Jayewardenepura.

Our community would agree that the academia today faces a crisis due to a dearth of high impact generating, quality research initiatives that inspire knowledge, education and sustainable development. This bleak reality despite having its many reasons thus signifies an urgent requirement for institutions such as ours to step in. Therefore, being the pioneering, leading and largest faculty providing Management education in the country, I believe that it is our duty to help rectify this situation by ensuring that our future generations would identify the need for such high caliber research projects and involve themselves in doing so.

On this note let me congratulate all staff and students of the Department of Finance headed by Dr. P. A. N. S Anuradha for continuing this valuable forum for the third consecutive year. I am certain that this will be a tremendous motivation and a clear path spread out for your students to engage and venture into truly exceptional research platforms and nation building initiatives in future. Therefore, I look forward to what this 3rd Student Conference in Finance would bring forth and wish nothing but the best for all students who will present their valuable ideas and receive constructive feedback by their fellow colleagues and teachers.

Dr. U Anura Kumara

Dean
Faculty of Management Studies and commerce
University of Sri Jayewardenepura



Message from the Head of the Department

Student Conference in Finance is one of the principal academic events organized by the Department of Finance, Faculty of Management Studies and Commerce, University of Sri Jayewardenepura with the prodigious intention of promoting research culture among the undergraduates of the department. It is with great pleasure that I write this congratulatory message to the Third Student Conference in Finance which is a significant event in the department's yearly calendar.

Research is an integral part in higher education since it provides an opportunity to apply the learnt knowledge to inspire new developments. The Department of Finance from its inception has been active in research and has setup an environment which supports its students and research scholars to engage in high quality innovative researches in the field of Finance.

This conference creates a platform for the students to disseminate their findings on contemporary trends and innovations in finance in front of academicians, research scholars and fellow students. The constructive comments and suggestions from the audience will be a valuable opportunity for the young researchers to develop their research interests and will nurture research culture among fellow students.

It is my humble wish that the professional dialogue among the academicians, students and research scholars continues beyond the event and that collaborations created will linger and prosper for many years to come.

On behalf of the Department of Finance, I would like to congratulate the presenters of the Student Conference in Finance – 2019, who have successfully completed their final year Research Study and present their findings in front of a scholarly gathering. Also I appreciate the dedication and efforts made by the conference team of the Student Conference in Finance – 2019, in making this event a reality.

I wish the conference a great success!!!

Dr. (Ms.) P A N S Anuradha

Head
Department of Finance
Faculty of Management Studies and Commerce
University of Sri Jayewardenepura



Message from the Conference Chairperson/ Coordinator

As the coordinator of undergraduate research of the Department of Finance I'm privileged to chair/ coordinate the Student Conference in Finance(SCF), organized by the department for the third consecutive year. Research work by students in every field of Finance is recognized and appreciated at the department.

The Goal of higher education is to prepare students for life in the real world. Universities as higher educational institutions are responsible in enhancing knowledge, skills and attitudes of their students to perform the professional work that makes businesses and industries operative. Higher education is naturally linked to the ongoing development of the theories, processes and applications that constitute each professional area. Research is an important activity in academic communities, that provides new knowledge that can support problem solving, decision-making, discovery, invention, and conflict resolution. In higher education, learning how to conduct valid research prepares students for their future professional lives, and it certainly enhances the learning process. Encouraging student research will help enhance student's knowledge as well as development of a country, thus, making it mandatory at universities. Research is mutually beneficial to students as well as universities. Students receive the direct benefits of enhancing research skills, presentation and communication skills, and a value addition to their CV.

The department of Finance has always been highlighting the significance of involving students in conducting research and has been taking every possible measure to encourage and motivate them towards research. SCF paves the way for all Finance undergraduates who have conducted research studies under the guidance of senior academics of the department, to exchange ideas, improve their communication skills and make their work known among the industry experts. By encouraging student research and organizing a platform for them to present their work the department of Finance is contributing towards creation of new knowledge and improving research skills of finance students. Ten students who have conducted research studies in 2017/2018 are presenting their findings at this year's SCF.

I take this opportunity to extend my sincere thanks to the Head: department of Finance, The Dean: Faculty of Management Studies and Commerce and the Vice chancellor, University of Sri Jayewardenepura for their commitment to create a research culture within the university, reviewers of the conference papers for their untiring efforts, the

Director AHEAD project for funding this event and the researchers who make presentations at the today's conference. The third SCF would not have been possible without the support of the conference organizing team for which I'm very much grateful.

Prof. R P C R Rajapakse

Conference Chairperson/ Coordinator
Department of Finance
Faculty of Management Studies and Commerce
University of Sri Jayewardenepura

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The Factors That Influence on the Relationship between Corporate Performance & Financing Decisions of Companies in Sri Lanka : Panel Data from Colombo Stock Market Listed Hospitality Firms (2011-2018)

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Keywords: Corporate Performance, Financing Decisions, Capital Structure, Hospitality Finance, Debts

1 Introduction

Sri Lankan hotel industry continues to grow rapidly, companies need to identify & encourage sustainability practices through recognizing & implementing industry financial & non-financial past experiences which are supportive for the enlargement of company norms inside the industry. After analyzing the financial data of thirty listed companies over the past six years, author identified fourteen factors & forty relationships among the corporate performance & financing decisions of companies in Sri Lanka. Through it, author explicated results of relationships which aid to increase the corporate performance while taking best financing decisions and effectively managing the other factors. This study summarized the best practices of taking financing decisions & managing other factors to obtain higher corporate performance level. Financing decisions are considered to be an important influence in a company's ability to deal with its competitive environment. According to the study higher corporate performance of a company shows the sustainability of financing decisions which are taken by the managers to address the company prosperity through investing, dividend distributing and managing resources & factors which influence the internal & external environment. The company management is required to maximize the wealth of their shareholders & other stakeholders' interest while taking best financing decisions to achieve higher corporate performance margin in the industry and to accomplish the variety of company objectives such as reducing extra financing cost by managing ideal capital structure. Capital structure states to the mix of debt and equity used by a firm in financing its assets. Also there should be a high corporate performance level to satisfy objectives of all stakeholders. This research is important from theoretical and practical perceptions. From a theoretical perspective, it brings reflective insights related to corporate finance theories and environmental perspectives, particularly from an emerging market context, i.e. Sri Lanka. From a practical perspective, there are lessons from the findings of the research to guide improvements in managerial practices and decisions in terms of financial issues, corporate decisions as well as environmental concerns and their contributions to corporate performance.

2 Literature Review

While most of the literature empirically examines the determination of financial decisions, few studies are focused on their association with the firm performance. The study of Al Mutairi, M., Hasan, H. M. & Risik, E. A. (2011) observed the effect of corporate financial decisions, capital structure, dividend policy and capital budgeting, along with the firm's attributes. They examined the impact of industrial sectors and financial performance using the panel data of 80 listed companies in Kuwait and identified there is a negative association between the level of debt and financial performance. Author added additional factors to the study such as used firms which operates in same industry & entirely different environmental conditions to identify the associations. Pandey, Chotigeat and Ranjit (2000), and Muradoglu and Sivaprasad (2009) are focused on the impact of capital structural choice on corporate performance and have found that this causes a negative or insignificant effect on the firm's capital structure policy and its performance. Hospitality firms are heavy users of long-term debt to support their asset investment (Singh and Upneja, 2008) and growth opportunities, and their debt structure is comprised largely of fixed-rate debt (Singh, 2009). Champika and Gunaratne (2007) found that Sri Lankan firms demonstrated a market timing behavior in adjusting their capital structure. They also

revealed that profitable firms are particularly very much reliant on internal financing. Rathirani and Sangeetha (2011) found a low relationship existing between the factors of leverage and profitability. They suggested that tangibility and assets turnover has negative relationship related with leverage. The results of the study of Sangeetha and Sivathaasan (2013), revealed that the use of debt capital is relatively low in Sri Lanka and that the size, growth rate and profitability are statistically significant determinants of capital structure. Firms with extraordinary growth opportunities may choose lower debt levels and thus have high performance (Titman and Wessels 1988 and Singh and Faircloth 2005). From the study conducted by Samarakoon (1997) by investigating the ability of market beta, book - to -market equity, leverage and earning price ratio to explain the cross-sectional variation in expected returns in Sri Lanka, it has been found that there is no evidence of a relationship between mean returns, size of the firm, book-to-market equity and leverage.

3 Problem Statement & Research Questions

The problem is to identify, how a firm can financially be sustainable to achieve its stakeholders' goals while keeping a balance between sensitive factors that mainly influence corporate financing decisions & corporate performance.

Building on the main objectives of the study, this study proposes the following specific research questions to correspond to main objective.

1. What are the relationship between financing decisions, other factors and corporate performance among hospitality firms in Sri Lanka?
2. What are the factors that can influence the relationship between financing decisions and corporate performance among the hospitality firms in Sri Lanka?

4 Objectives

The objective of this study was to examine the influenceable factors & identify the relationship between corporate performance, financing decisions and influenceable factors of listed hospitality firms in Sri Lanka.

5 Research Methodology

Secondary data of CSE listed thirty (30) hotels over eight years (2011-2018) were randomly selected as the sample. Author used to analysis "Company" financial data of annual reports because "Group" financial data consisted several capital structure policies of one particular group & difficult to compare. The dataset contained detailed information about each publicly traded firm. The information for all accounting related variables were collected and calculated from annual financial reports. The dividend, market beta and market capitalization data were collected from historical data available at the CSE website. Calculated dependent & independent variables can be identified as follows,

Dependent Variable - Corporate performance.

1. Accounting Performance Measures
 - *Return on Assets (ROA)*
 - *Return on Equity (ROE)*
2. Market Performance Measures
 - *PE Ratio*
 - *Tobin's Q*

Independent Variables - Financing decisions & other factors.

1. Capital Structure
 - *Total Debt to Total Assets*
 - *Long-term Debt to Total Assets*
2. *Short-term Debt to Total Assets* Dividend policy

3. Other factors
 - *Company Size*
 - *Risk of the Company* -
 - *Market Beta*
 - *Accounting Risk*
 - *Growth of the company*
 - *Tangibility*
 - *Liquidity*
 - *Interest Rate*

The study has used descriptive analysis & inferential analysis (correlation & multiple panel regressions analyses) to find out the association between variables with the support of stata data analytical software. Huasman test was used to identify which method to use to run regression, simply to identify weather it was random effect model or fixed effect model. Author used multicollinearity assumption & correlation matrix for each and every individual model specified that there should not be any exact linear relationship existing between the explanatory variables.

6 Findings & Conclusions

$$\gamma_{it} = \beta_0 + \beta_1 \text{CSD}_{it} + \beta_2 \text{DIVID}_{it} + \beta_3 \text{SIZE}_{it} + \beta_4 \text{RISK}_{it} + \beta_5 \text{GROWTH}_{it} + \beta_6 \text{TANG}_{it} + \beta_7 \text{LIQUID}_{it} + \beta_8 \text{INTRATE}_{it}$$

Author developed twelve models to examine the above relationship. Thus, this formula can be used to measure the corporate performance of particular company & to compare with the industry. The results of this study proposed that, contrary to the Trade-off Theory of capital structure, there is a negative connotation between the level of debt and financial performance. This can be attributed to the high cost of borrowing and the underdeveloped nature of the debt market in Sri Lanka.

Findings of the study revealed that all independent variables were determinants of corporate performance of CSE Hospitality sector. And also Dividend policy, Liquidity, short term capital structure & Firm's risk have a significantly positive relationship with corporate performance, while other variables show significantly negative relationships with corporate performance. This empirical finding showed support for the asymmetric information hypothesis of Myers, Majluf (1984) and Helan.M. Hasan (2011). There were some interesting findings in Sri Lankan context. Capital structure has both positive and negative influence to the accounting and market performance measures. Another interesting finding was that SDTA was found to have significant and positive effect on corporate performance. There was a significant negative impact of LDTA.

Variable		ROA	ROE	PE	TOBIN'S Q
Dividend Yield		Positive	Positive	Positive	Negative
Firm's Size		Negative	Positive	Negative	Negative
Firm's Risk	Acc	Positive	Negative	N/A	N/A
	Beta	N/A	N/A	Positive	Positive
Firm's Growth		Positive	Negative	Positive	Negative
Tangibility		Positive	Negative	Negative	Negative
Liquidity		Positive	Positive	Negative	Positive
Interest Rate		Negative	Negative	Negative	Positive

Variable	Capital Structure Decisions		
	CDS TDTA	CDS LDTA	CDS SDTA
ROA	Negative	N/A	N/A
	N/A	Negative	N/A
	N/A	N/A	positive
ROE	Positive	N/A	N/A
	N/A	Negative	N/A
	N/A	N/A	positive
P/E	Negative	N/A	N/A
	N/A	Negative	N/A
	N/A	N/A	Negative
TOBIN'S Q	positive	N/A	N/A
	N/A	Negative	N/A
	N/A	N/A	positive

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Foreign Direct Investment and Economic Growth: Evidence from Sri Lanka

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Keywords: Foreign Direct Investment (FDI), Economic Growth, Sri Lanka

1 Introduction

Foreign direct investment (FDI) is one of major source of sustainable growth and development of developing countries in the recent past and it is defined as establishing a lasting interest by a resident enterprise in one economy (direct investor) in an enterprise (direct investment enterprise) that is resident in an economy other than that of the direct investor (OECD, 2008). FDI comes in several forms which cause to solve socio-economic problems of developing countries in numerous ways such as unemployment problems, deficit balance of payment and etc. at the moment, Sri Lanka is inviting FDI itself with a view to accelerate the country economic growth and in 2017, it has been received the highest FDI inflow ever in the history. On the one hand, Sri Lanka has categorized into middle upper income. Country in the development index and therefore it is difficult to get foreign aids in to the country. On the other hand, Sri Lanka's domestic investment to the GDP is very low and it is not sufficient to start up mega projects which uplifts lives of people and the growth of the country. Therefore, FDI plays a key role in the growth and development of the country to achieve its ultimate vision which is to become a developed country in 2030.

2 Research Problem

After the increase of globalization across the world, FDI becomes as an important development mechanism and solver of biggest socio economic issues in developing countries. Many of them have concluded that FDI has a positive impact on the economic growth which was based on different countries and regions (Moudatsou, 2003: De Mello, 1997). The scenario of FDI and economic growth has been tested in many different countries, but a few research studies on FDI and economic growth have been carried out in Sri Lankan context. Furthermore, Sri Lanka recorded the highest FDI inflows to the country during recent past years and the economic growth of Sri Lanka has been lowered during these periods. Therefore, this study addresses whether the FDI impacts on economic growth in Sri Lanka.

3 Research Objective

In order to address the above research problem, this research study aims to examine the relationship between FDI and economic growth of Sri Lanka particularly and identify any other factors which may impact on economic growth in Sri Lanka generally.

4 Research Methodology

This study focused to analyze the relationship between FDI and economic growth of Sri Lanka and researcher selected 57 years data as the sample and it is from 1961 to 2017. Researcher used secondary data to achieve its objectives through World Bank data repository. Moreover, to achieve the main objective of this study, multiple regression analysis has been adopted to recognize the relationship between independent and dependent variables, and analyzed the data using SPSS data analytical software.

Tabassum and Ahmed (2014) employed (assuming) production function of $Y = f \{FDI, L, K\}$ to investigate this relationship in Bangladesh where Y represents aggregate real output, K is the capital stock, L is labor force and FDI is foreign direct investment. Trade liberalization has a major impact on economic growth and thereby, trade openness has been used as an additional dependent variable and L has been dropped from the equation considering the concept of labor surplus economies by them. Furthermore they have used domestic investment as an alternative for the K. based on that, relationship between FDI and Gross Domestic Product (GDP) can be developed by following function, $GDP = f \{FDI, TOPEN, DI\}$. The developed function can be shown in a regression line as follows and according to that there are three main factors determine the GDP.

$$GDP = \beta_0 + \beta_1 FDI + \beta_2 TOPEN + \beta_3 DI + e$$

Where GDP is the proxy for the economic growth and it is defined as the total produced goods and services by a country in a given period of time. Major independent variable of FDI is defined as the net investment to the host country from outside countries and it is measured by using ratio of net FDI inflow to GDP. Second independent variable is trade openness which is explained how a country open to outside world in trade and it is measured by using the ratio of merchandise trade goods to GDP. Domestic investment is the investment which formed by the country itself and it is measured as the ratio of domestic investment to GDP. The dependent variable of GDP is measured using the real growth rate of GDP of the country. This can be expressed as follows.

Table - Research Model Variables

Variables	Measurement	Formula
Gross Domestic Product (GDP)	Real rate of GDP growth	$=((GDP_t - GDP_{t-1}) / GDP_{t-1}) * 100$
Foreign Direct Investment (FDI)	Percentage of Net FDI inflows to GDP	$= (Net\ FDI\ Inflow / GDP_t) * 100$
Trade Openness (TOPEN)	Percentage of total merchandise trade (imports + exports) goods to GDP	$= ((Imports + Exports) / GDP) * 100$
Domestic Investment (DI)	Percentage of domestic investment (gross domestic investment- Net FDI inflows) to GDP	$=((Gross\ Domestic\ Investment - Net\ FDI\ Inflow) / GDP) * 100$

Source – Author Created

Based on the assumed relationship, following hypotheses are developed.

H₁ – There is a positive relationship between FDI and economic growth of Sri Lanka.

H₁₀ – There is a Negative relationship between FDI and economic growth of Sri Lanka.

5 Findings & Conclusion

FDI is one of major source of sustainable growth and development of developing countries in the recent past and it acts as an aider in the solving biggest socio - economic problems of developing countries. Theories of FDI and economic growth believe that FDI accelerate economic growth of countries in different ways but in recent years, Sri Lanka is experiencing vise- versa context where economic growth decreasing while FDI flows are increasing.

According to regression results, the p value of the t value of FDI, trade openness and domestic investment are less than five percent significance level and theory suggests that if the p value of the t value is less than five percent, there is an impact on dependent variable from the independent variable (Landau and Everitt, 2004). Results suggest that all p values of t values of independent variables are higher than the significant level and thereby it implies that FDI, trade openness and domestic investment have no impact on the GDP of Sri Lanka. It reveals that there are other indicators and independent variables which impact significantly on the GDP of Sri Lanka. It seems that there may be some policy issues, conflicts or lack of human capital to absorb FDI in favor of increase the current level of GDP of Sri Lanka.

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Stock Splits in Sri Lanka

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Keywords: Stock Splits, Signaling, hypothesis

1 Introduction

A stock split is a decision by the company's board of directors to increase the number of shares outstanding to its current shareholders. This is purely a cosmetic event not having a direct impact on the company's valuation as it does not change the company's financial performance by altering the future cash flows. Stock splits are meant to make the shares of the company more affordable as well as increase firm's liquidity in the market. And the splits are usually done by companies that have seen their share price increase to the levels that are either too high or are beyond the price levels of the similar companies in their sector.

Fama et al (1969), Grinblatt et al (1984) and more recently Gunathilaka, C and Kongahawatte, S. (2011), Li, Stork and Zou (2011) and Silva (2013) have observed short term abnormal returns around announcement day of the stock split. Hence it is hypothesized that there is an informational content in the announcement of stock splits. This has been attributed to various hypotheses such as the; Efficient market hypothesis, Signaling hypothesis; Liquidity hypothesis; Neglected firm hypothesis; and Managerial entrenchment hypothesis;

This research that has been carried out in Sri Lanka, which examine whether there is informational content in the stock split announcement during the period of 2010 to 2017. Further efficiency in the information, how information is reflected in the stock prices.

2 Literature Review

Fama et al, (1969) studied that management decide to take place a stock split if they believe that the future dividends of the company will be higher. Grinblatt, Masulis and Titman (1984) theorized that a significant stock price reaction to the announcement of stock splits by firms which did not pay cash dividends in the three years prior to the stock split. Market would react to the stock split announcement since investors respond to the information of the firm: evident that split announcement conform the signaling hypothesis.

Guirao and Sala (2002) studied that liquidity hypothesis is based on two fundamental arguments. First one is, investors value liquidity and pay a premium for it. Further they argue that stock price is inversely related with liquidity. Since managers tend to split their stocks and make prices at lower level. Ultimately attract more investors and increase the demand for the stock. This increased in demand will improves the liquidity of the stock. Since the liquidity of the stock has increased premium for liquidity will reduces and it further reduce the required of return of the investors. As a result of the lower required rate of return, the market value of the firm's shares will increase. Second argument is that investor are prefer lower priced shares over higher priced shares due to some psychological reasons,

Guirao et al (1986) as they think that low priced shares will fall less than high priced shares. Lakonishok et al (1987) theorized that there is an optimal trading range for securities, which companies tries to maintain. Further they argued that stock splits help stock prices to their normal trading range and show that post-split prices tend to coverage to historical levels. Ahimud and Mendelson (1986) theorized that managers split their shares to reduce the price of shares and attract

more investors. Further they found that there is a positive relationship between liquidity and the equity value.

Grinblatt et al (1984) examined the announcement day effect of stock dividends and splits of more than 10% at NYSE and AMEX listed securities during the period of 1967 and 1976. They found that there is a positive return for firms who has announced a stock split or dividend. Masse, Hanrahan and Kushner (1997) theorized that announcement day effect of stock splits by examining stock splits, reverse splits and stock dividends of Toronto Stock Exchange from 1975 to 1994. They derived the abnormal returns using mean adjusted model, market adjusted return model and the simple ordinary least square market model. Wulff (2002) examined the market reaction for stock splits during the period of 1960-1996. His sample consisted with 276 splits announced by firms which listed in the Frankfurt stock Exchange. He found that there is an abnormal returns around the execution day of the stock splits. Gunathilaka and Kongahawatte (2011) examined the market reaction to the announcement of the stock split. This study carried during the period of 2007 to 2010 and considered the 40 stock splits. They found that stock split announcements create a significant positive market reaction. Further they have theorized that the size of the split is positively related to the abnormal return generated. Silva, K (2013), 'An Event Study of Stock Splits in the Colombo Stock Exchange' carried out a study on the informational content of the announcement of the stock splits in Sri Lanka. He considered 80 split events which were related to the 66 companies. And found that there is a positive returns associated with the announcement of the stock splits, further he found that there is a positive relationship between the abnormal return and the split ratio.

Studies on stock splits by Gunathilaka (2011) and Silva (2013) evident that end of the war led to a rapid growth in the Colombo Stock Exchange, this witnessed by increasing the number of the stock splits in the period of 2010 and 2011.

3 Research Questions

What is the effect of the stock split announcement on the return of the stock?

To determine whether there informational value in the announcement of stock splits by companies which listed in the Colombo Stock Exchange (CSE) in 2010 to 2017 period. If so determine the effect of those stock split announcements on the shareholder return, whether there is an abnormal return of the underlying stock around the announcement day.

4 Objectives

Find out the impact of the split announcement around the split announcement days;

5 Methodology

The study is based on the Sri Lankan listed companies on Colombo Stock Exchange, who made an announcement of stock splits from 2010 June to 2017 December. There were 56 stock split announcements by 42 individual firms. And the study obtained data regarding the stock split announcements, ASPI and company information such as daily share prices from Colombo Stock Exchange data library.

Brown and Warner (1985) found that when return on the market index and the return on a security are measured over different trading intervals, Ordinary Least Square estimates of market model parameters are biased and inconsistent.

However, Seiler (2000) theorized some reasons to use of Ordinary Least Square estimates irrespective of using alternatives models. Since this study uses Ordinary Least Square (OLS) regression.

The event window for this study is 21 days. The date of split announcement made is considered as $t = 0$. 10 days before the split announcement ($t = -10$) being made are taken to investigate whether the market has acquired any information before the announcement and 10 days after the announcement day ($t = +10$), will take to assess the price changes on stocks after announcement has made.. Market Model uses as the benchmark model to evaluate the abnormal returns for the test period of $t = +11$ to $t = 130$.

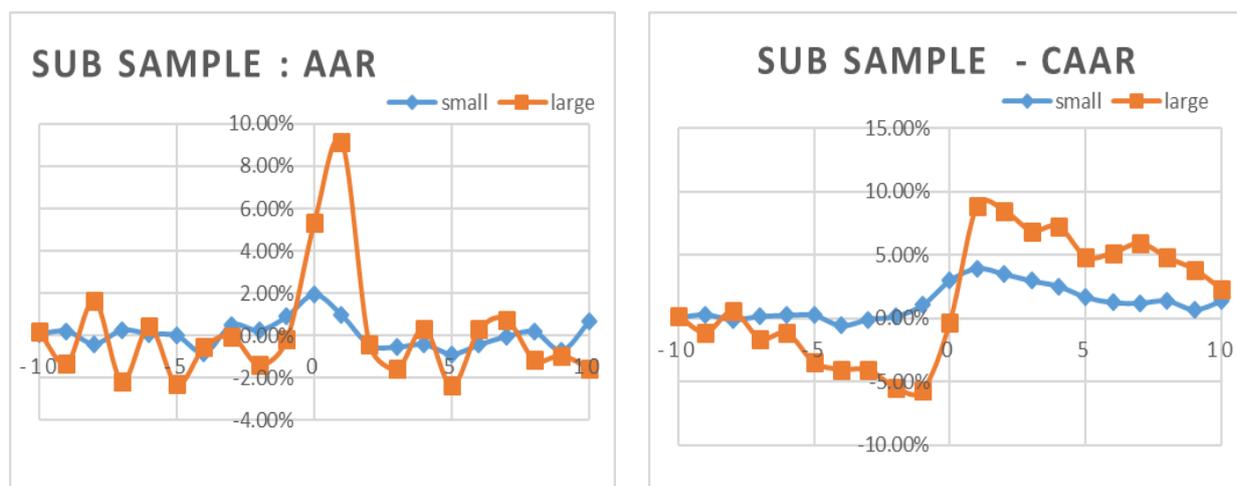
$$E(R_{it}) = \alpha_i + \beta_i R_{mt} + \mu_t$$

Then compare the benchmark return with the observed return for the period

$$AR_{it} = R_{it} - E(R_{it})$$

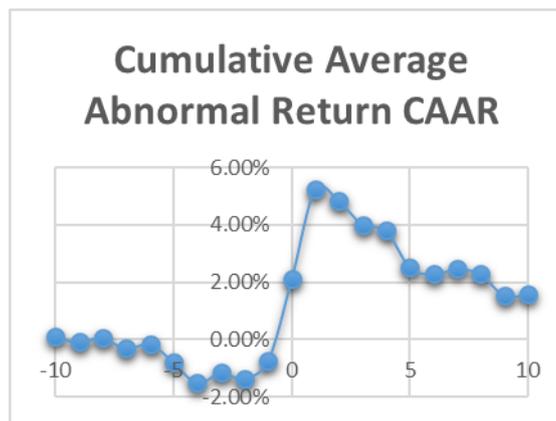
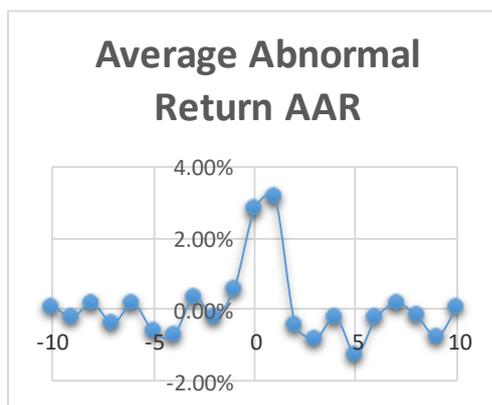
The total sample of 56 split announcements were sub divided into two categories based on the size of the split namely: small, number of new shares for one existing shares are less than five and the large where the number of new shares for one existing share is greater than five. 41 split announcements were classified as small and 15 were classified as large

Findings suggests that there is a statistically significant positive average abnormal return generated on the split announcement day and the day following the announcement day. The Average Abnormal Returns on the announcement day is 2.84% and statistically significant at 95% confidence interval (0.05 level). Positive returns continue up to day 1 and it is exceed the AAR of the announcement day, which is 3.16% and statistically significant at 95% confidence level.



And the cumulative average abnormal returns are positive on the split announcement day and it continued till event window ends. CAAR are negative up to the announcement day and it is starts to become positive from the announcement day, which is 2.10%. CAAR at the peak on the day after the announcement day, which is 5.25% and starts to reduce from $t = 2$ but is stays positive throughout the event window from $t = 0$ to $t = 10$.

Further this study finds a positive relationship between the split ratio and abnormal returns. Despite of the split ratio both small and the large samples have generated a positive abnormal return on the split announcement day and the post announcement days. Large split ratio generates a positive abnormal return of 5.34% which is greater than positive abnormal return generated by the small split ratio of 2.97%



The results of this study indicate that there is a statistically significant positive average abnormal return generated on the split announcement day and the day following the announcement day. And the cumulative average abnormal returns are positive on the split announcement day and it continued till event window ends.

Existence of abnormal returns on days before the split announcement day shows that leakage of internal information and supports strong form of efficient market. However, this study couldn't observe statistically significant positive abnormal returns on days prior to the split announcement day. It proves that the market is not efficient in strong form, evident that Sri Lankan market is semi strong form of efficient market. Since this analysis confirms the information efficiency in the Sri Lankan market, since this study observed an average abnormal return on the split announcement day and the post announcement days.

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Relationship between Stock Price and Exchange Rate using Non-linear ARDL Model (NARDL) – Evidence from Sri Lanka

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1 Background of the Study

With the integration of financial markets, more opportunities abound for the investors of emerging economies, and some frontier countries (Jimoh Olajide Raji, Yusnidah Ibrahim & Siti-Aznor Ahmad, 2017). This integrated and liberalized global economy has encouraged the international trade between countries and investors tend to invest in foreign stock markets without any hesitant due to less policy restrictions in countries. In particular, the continuing process of market integration has made the exchange rates as one of the main determinants of business profitability and equity prices (Kim, 2003). Given this fact, it has been great interest to identify whether there is a short run or long run relationship between exchange rate and the stock prices.

Although, there are a number of literature those have dealt with the impact of exchange rate changes on stock prices, the asymmetric aspect of the relationship is very limited. A symmetric relationship between exchange rate and stock price means domestic currency appreciates has negative effects on stock price and depreciates has the opposite effect but, according to; Mohsen and Saha (2015) highlighted the need of the new direction of considering symmetric and asymmetric aspects of the relationship. Specially, in Sri Lankan context there is only few studies have done to examine relationship between exchange rate and stock prices. In this backdrop, in this paper we have assumed exchange rate have asymmetric effect on stock price and in our analysis, we examine whether there is any whether short run or long run relationship between exchange rate and stock prices and if so, what is the nature of relationship.

From the reviewing of more recent studies it is clear that the link between exchange rate and stock price is dependent on the data frequency and period chosen, the countries studied, and other macro variables, etc. And also, in overall most of the papers concluded that in the short run, stock prices and exchange rates are related but there is no relationship between them in the long run. Other macroeconomic variables like, CPI (inflation rate), interest rates, discount rates, oil prices, money supply, industrial production, GDP and foreign capital also are found to affect stock prices. The paper of Guneratne Wickremasinghe (2011) examined the causal relationships between stock prices and six macroeconomic variables in Sri Lanka.

There is no consensus in empirical research into the relationship between stock prices and exchange rates (Issam. Abdalla & Victor Murinde, 1997) (Babajide Fowowe, 2015). There have been many studies examining the relationship between stock prices and exchange rates by using different samples from different countries. These studies provided mixed results. The study of Ismail and Isa (2009) by using Malaysian monthly data from 1990 to 2005, their analysis showed that a non-linear model is more fitted to model all the series than the linear model. According to the findings in recent study by Taufeeq Ajaz *et al.* (2017), the results point toward the presence of asymmetric reaction of stock prices to changes in exchange rate for full sample they used from India. Bahmani-Oskooee and Saha (2016) have introduces nonlinearity into their study on examine exchange rate effects on stock prices using monthly data from Brazil, Canada, Chile, Indonesia, Japan, Korea, Malaysia, Mexico, and the U.K. and showed that exchange rate changes have asymmetric effect on stock prices, though the effects are mostly short-run.

This study contributes to knowledge by introducing non-linear auto-regressive distribution lag (NARDL) model which assume asymmetry affect to stock prices on exchange rate changes. We can investigate whether introduced method will solve, the unsolved relationship of exchange rate and stock prices and by this analysis we could identify the nature of the relationship and the direction. A

strong relationship between them would have important implications for economic policies and investment decision making because shocks in foreign exchange market may be transmitted quickly to stock market and thus affecting stock returns. (Siew-Pong Cheah *et al.*, 2017). Moreover, developing countries can exploit such a link to attract/stimulate foreign portfolio investment in their own countries (Naeem Muhammad, Abdul Rasheed and Fazal Husain, 2003).

Based on the research gap identified above, this research focuses on analyzing the examined the dynamic interaction between stock prices and exchange rate in Sri Lanka. Thus, this study analyzes the asymmetric reaction of stock price for changes of exchange rate both short run and long run between stock prices and exchange rates.

2 Methodology

The data required for the analysis process were mostly obtained from secondary sources, mostly from the databases of financial and research institutions. The daily returns of the All Share Price Index (ASPI) from May 5th, 2010 to March 31st, 2018 collected from Colombo Stock Exchange (CSE) are considered in this study. The business days in CSE are from Monday to Friday except public holidays. The logarithmic returns of daily the ASPI index is calculated as:

$$R_t = \ln(I_t / I_{t-1}) \quad \text{Equation 01}$$

where I_t is the daily index value at time t . On public holidays when the market is closed for trading, the value of the index is set to a missing value. In this study, daily exchange rates of Sri Lankan rupees (LKR) per US Dollar (USD), Sri Lankan rupees per Australian Dollar (AUD) and Sri Lankan rupees per Indian rupees (INR) from May 5th, 2010 to March 31st, 2018 were collected from database of Central Bank of Sri Lanka.

As the study involves time series data, it is important to check the stationarity of the variables. Therefore, the Augmented Dicky Fuller (ADF) test (Dickey & Fuller, 1979) is applied to test the stationarity of the data.

The Nonlinear Auto-Regressive Distributed Lag Model (NARDL) advanced by Shin *et al.* (2014) is employed in this study to explore the relationship between exchange rate and stock price over both the long- and short-term. As shown in Shin *et al.* (2014),

$$\Delta SP_t = \alpha_0 + \sum_{k=1}^{n1} \alpha_1 \Delta SP_{t-k} + \sum_{k=1}^{n2} \alpha_2 \Delta EX_{t-k}^+ + \sum_{k=1}^{n3} \alpha_3 \Delta EX_{t-k}^- + \beta_1 \ln SP_{t-1} + \beta_2 EX_{t-1}^+ + \beta_3 EX_{t-1}^- + \mu_t$$

Equation 02

In this study, mainly tests three hypotheses. Frist one test the long run co-integration using bound test results of NARDL model. A Wald F-statistics will be calculated assuming a null hypothesis of joint significance where $H_0: C(1) = C(2) = C(3) = C(4)$. If the F-statistics is greater than the upper bound critical values (Pesaran *et al.*, 2001), we can conclude that a long-run relation exists between stock price and the exchange rate.

H_0 ; There is no co-integration in long run

H_1 ; There is co-integration in long run

Second hypothesis test whether there is any asymmetric reaction of stock prices to changes in exchange rate in short run. This hypothesis can be tested by evaluating α_1 and α_2 in Equation 01 as they capture the effect of exchange rate appreciation and depreciation on stock return, respectively in short run.

$H_0: \alpha_1 = \alpha_2$ (no asymmetry is found between stock prices and exchange rate movements)
 $H_1: \alpha_1 \neq \alpha_2$ (asymmetry is found between stock prices and exchange rate movements)

Third one tests the asymmetry affects in long run using the coefficients of NARDL model. In long run asymmetry could test using hypothesis of;

$H_0: \beta_2 = \beta_3$ (no asymmetry is found between stock prices and exchange rate movements)
 $H_1: \beta_2 \neq \beta_3$ (asymmetry is found between stock prices and exchange rate movements)

3 Conclusions

This research paper attempts to analyze the relationship between exchange rate movements and stock prices in Sri Lanka, using daily observations from 7th May 2010 to 31st March 2018. In this study, mainly tests three hypotheses.

For proceed with NARDL model, we have to check if the data series are stationary or they have unit roots. As per the results of ADF test, only the ASPI, USD, AUD, INR and JPY stationary in first difference which implies all the original series have unit root but one order integrated I (1). Accordingly, NARDL model can be performed to test co-integration and to identify the asymmetric relationship of between exchange rate and stock price in Sri Lanka.

According to results of bound test, F calculated is higher than the critical value for all the three exchange rates except AUD, and we could conclude that USD, INR and JPY have long run co-integration with ASPI. By analyzing coefficients of NARDL model we identified short run asymmetry for all the exchange rate with ASPI but only JPY has the long run asymmetry with ASPI.

Our empirical results carry several implications to different audiences. From the prospect of securities investor, it is advisable to stay responsive to the fluctuations of exchange rate, especially when currency is appreciating. As our results estimated that stock prices will drop in the long run when rupee depreciates or appreciates in value against Japanese Yen (JPY). And also in short run, investors should closely investigate the movements of exchange rates as it has asymmetric effect on stock prices and by identifying the movements correctly investors could gain profits. Our results also provide some suggestions on the direction of monetary policymaking. Monetary policy makers are recommended to be more attentive as they plan to announce any new policy change that might trigger persistent shocks to stock market. These policies include any that would affect currency rate of the country. The employment of non-linear technique would enhance future studies in terms of better model specification. Our findings also provide another explanation for mixed results found in the relationship between stock price and exchange rate. The asymmetric relations between the two variables could be one of the reasons.

The major limitation was the use of daily data of ASPI as a proxy of stock market price. There is other appropriate proxy such as S&P 200. Therefore, this may contribute to the insignificant results for the explanation of the stock index and exchange rate. It would be interesting to apply daily statistics of S&P 200 also for better results. it is better to include more macro variables to model to investigate the asymmetric reaction of the stock price in Sri Lanka such as interest rate, money demand, and foreign direct investments etc. And as our analyze studied about whole market further we could analyze the reaction of stock prices sector wise in stock market for movements of macro variables.

A further area of research is to extend the NARDL model by adding other macro variables to the model and would generate more explanatory power than this model. However, there is a room for future research focusing on sector wise analysis about relationship between macro variables and stock prices. Future research could reapply this study by using S&P 200 index, this index was designed to measure the performance of largest and liquid 20 companies in Sri Lankan equity market and evaluate the relationship between exchange rate and stock price.

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Relationship between Macro-economic variables and Stock Market Indices: Evidence from Sri Lanka

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Keywords: Stock Market, Colombo Stock Exchange, Stock Market Indices, Macroeconomic Variables, Regression Analysis

1 Introduction

The stock market can be defined as the market in which shares of publicly held companies are issued and traded either through exchanges or over the counter markets (OTC). People invest their funds in stocks to generate return. Therefore, investors want to know how the performance of the stock market changes or what affects the stock market performance. The performance of a stock market is normally measured in terms of some composite market indices. The composite market indices are often considered to signal historical current and potential performance of the respective stock markets (Nijam et al., 2015). Any stock exchange could consist of several other indices in addition to the composite share market index. Those indices reflect some specific sections of the market such as business sectors and best performing companies. For instance, Colombo Stock Exchange (CSE) maintains All Share Price Index (ASPI) which is a composite index covers all the listed companies while S&P SL 20 is designed to measure the performance of the largest and most liquid companies in CSE. Apart from that it consists of 20 sector indices representing the price movements of the respective business sector companies. Chen et al. (1986) suggested that macroeconomic factors have systematic influences on stock prices through the impact on future dividends and the discount rate. Therefore, the country's macroeconomy plays a significant role in determining the stock market performance of that country. Hence, the purpose of this study is to identify the impact of macroeconomic variables on stock market indices in the Colombo Stock Exchange. The results of a study of this nature will be of enormous importance for both local and foreign investors, policy makers, stock market regulators, stock market analysts and multinational companies.

2 Literature review

The arbitrage pricing theory (APT) which is an alternative to the Capital Asset Pricing Model (CAPM) starts with the assumption that security returns are related to an unknown number of unknown factors. Chen et al. (1986) examined the validity of the APT in the US securities market and used the US macroeconomic variables namely; term structure of interest rate, industrial production, risk premium, inflation, market return, and consumption and oil price as proxies for the underlying risk factors that determine the stock market performance. Crude oil price is a vital factor of macroeconomy which creates significant consequences to both oil importing and exporting countries. For an example, Hooker (2002) claimed that any oil price increase will tend to have negative impacts for oil importing countries and ultimately to the stock market performance. In the Sri Lankan context Nijam et al. (2015) investigated the relationship between ASPI of CSE and five macroeconomic variables; gross domestic product, inflation, interest rate, balance of payment and exchange rate using Ordinary Least Square (OLS) technique. Even though the relationship between macroeconomic variables and stock market performance is well-documented in literature, studies examining the relation of macroeconomic variables on individual stock market indices are scarce. Maysami et al. (2004) examined the long-term equilibrium relationship between selected macroeconomic variables such as inflation rate, industrial production, money supply, interest rates and exchange rates and Singapore stock market index, as well as with three sector indices - the finance index, the property index, and the hotel index. In addition, Chen (2007) investigated the impact of macro and non-macro explanatory factors on Chinese hotel sector returns by applying the OLS technique. Apart from the general macroeconomic variables he included total foreign tourist arrivals and total imports variables as well to measure the impact on hotel sector performance. Unfortunately, we hardly find similar

studies in Sri Lanka which consider the macroeconomic impact on sectorial stock market indices. Hence, there is a growing need to identify whether sectorial market performances of CSE are in line with ASPI or not. With that motive the current study employs seven macroeconomic variables namely Nominal Exchange rate (EXR) between Sri Lanka and US, Inflation Rate (CCPI), Nominal Money Supply (M_1), Interest Rate (SPD), Imports (IMP), International Crude Oil Price (OIL) and Tourism Arrivals (TA) to identify the impact on ASPI as well as on three sector indices - Bank, Finance and Insurance Sector Index (BFI), Hotels and Travels Sector Index (H&T), Land and Property Sector Index (L&P).

3 Problem Statement and Research Questions

Problem Statement

Since most of the previous studies in Sri Lanka carried out using ASPI (Nijam et al, 2015) the researcher basically concerns about the sectorial impact of CSE. Even in Sri Lanka when investigating the impact of macroeconomic factors on stock market behaviour, the findings may vary with different sample periods and different frequency of the data. Therefore, it is worthwhile to investigate whether ASPI as well as the sectorial stock market indices indicate similar patterns or not against the macroeconomic factors with the recent data.

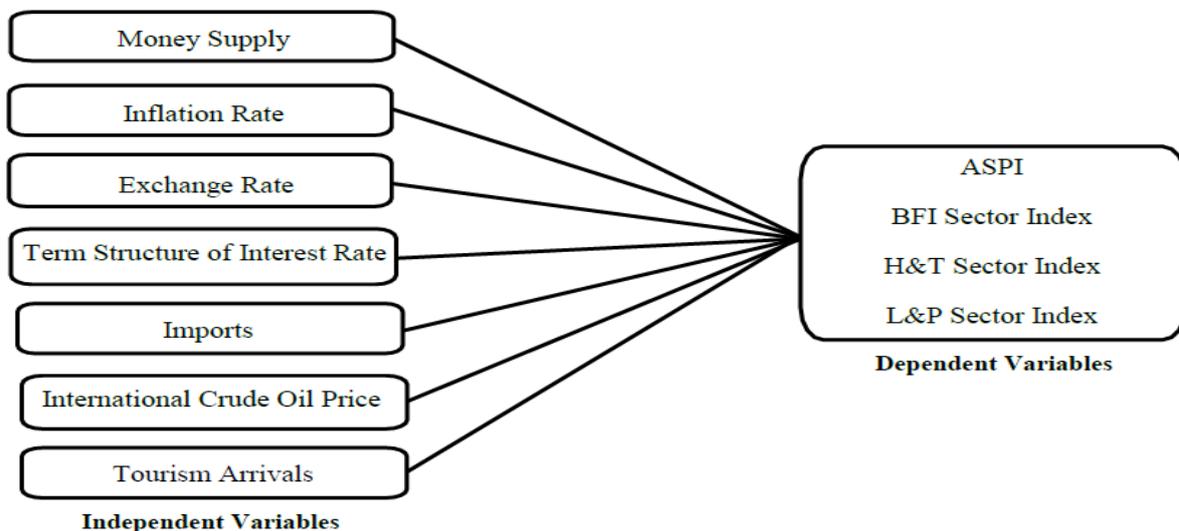
Research Question

“Do the changes in selected macroeconomic variables influence differently on the performance of ASPI, Bank, Finance and Insurance Sector Index (BFI), Hotels and Travels Sector Index (H&T) and Land and Property Sector Index (L&P) of CSE?”

4 Research Objective

To test whether macroeconomic factors in Sri Lanka explain the behaviour of the ASPI as well as sectorial market indices in the similar manner or not.

5 Research Methodology



The study uses secondary data of 11 years ranges from January 2007 to December 2017 on monthly basis and the analysis has been performed using the Eviews 8 software package. All the variables are in natural logarithms at levels. First the data set is tested against unit root problem using Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. Then, to examine the impact, the researcher runs Multivariate Regression Models for each index using the data corrected for the unit root problem.

Macro-economic variables and ASPI,

$$Dln (ASPI)_t = b_0 + b_1Dln (CPI)_t + b_2Dln (SPD)_t + b_3Dln (OIL)_t + b_4Dln (IMP)_t + b_5Dln(MI)_t + b_6Dln (EXR)_t + b_7Dln (TA)_t + \mu_t$$

Macro-economic variables and BFI sector Index,

$$Dln (BFI)_t = b_0 + b_1Dln (CPI)_t + b_2Dln (SPD)_t + b_3Dln (OIL)_t + b_4Dln (IMP)_t + b_5Dln(MI)_t + b_6Dln (EXR)_t + b_7Dln (TA)_t + \mu_t$$

Macro-economic variables and H&T sector Index,

$$Dln (H\&T)_t = b_0 + b_1Dln (CPI)_t + b_2Dln (SPD)_t + b_3Dln (OIL)_t + b_4Dln (IMP)_t + b_5Dln(MI)_t + b_6Dln (EXR)_t + b_7Dln (TA)_t + \mu_t$$

Macro-economic variables and L&P sector Index,

$$Dln (L\&P)_t = b_0 + b_1Dln (CPI)_t + b_2Dln (SPD)_t + b_3Dln (OIL)_t + b_4Dln (IMP)_t + b_5Dln(MI)_t + b_6Dln (EXR)_t + b_7Dln (TA)_t + \mu_t$$

Finally, residual diagnostic tests are applied by examining Variance Inflation Factor (VIF) for possible multicollinearity, Breusch-Godfrey Serial Correlation LM Test and Breusch-Pagan-Godfrey Test for heteroskedasticity.

6 Findings and Conclusions

SPD, IMP, EXR variables report significant negative impacts on all the stock market indices while OIL variable has a significant positive impact except for the L&P index. OIL variable has no significant influence over the L&P index. However, this positive impact does not match with the literature since Sri Lanka is an oil importing country and expected to have a negative consequence when the oil price increases, so the exact nature of this relationship is bit inconclusive and suggest further studies in the Sri Lankan context. On the other hand, the multivariate regression results indicate that ASPI, BFI and H&P sector indices behave in same way and are exposed to similar impacts from macro-factors. Highest R² value (31.68%) of BFI index reveals that the selected macro variables describe the movements of BFI index better than other indices. It is not surprising because in real terms BFI sector companies are more sensitive to the macro factors such as Inflation, Interest rate, Money supply and Exchange Rate. In contrast, L&P index indicates the lowest R² value (17.51%) which means that selected macroeconomic factors do not explain most of the variation of L&P index. However, these weak explanatory powers of the regression results in this study imply that there may be other macroeconomic factors affecting stock market indices of Sri Lanka other than the tested ones.

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An Empirical Investigation on Financial Integration of Sri Lankan Stock Market with Developed Stock Markets

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Keywords: Financial Integration, Developed Markets, Portfolio Diversification, Cointegration, CSE

1 Introduction

The consequences of global financial crisis in 2007-2008, proved the world that there are no longer independent national stock markets and all stock markets are interrelated and interdependent to each other. It increased the interest of academic scholars, investors, portfolio managers and policy makers towards the identification of financial integration among global economies. According to Jawadi and Arouri (2008) two markets become perfectly integrated, if investors can freely move from one market to another and if there are arbitrage opportunities which makes stock prices to be indifferent for both markets. When stock markets are highly integrated or have high correlations, investors do not receive any long-term extra gain through international portfolio diversification. It is very informative to identify the financial integration relationship of Colombo Stock Exchange (CSE) with other developed stock markets because it indicates whether there are opportunities for investors in developed markets to diversify their investment portfolios by investing in CSE or not. Therefore, this research aims to contribute to the existing body of knowledge from two aspects. First it identifies whether there are opportunities for investors in developed countries to diversify their investment portfolios in CSE or not by identifying long-term financial integration. Secondly assessing whether the CSE is susceptible for shocks arise in the developed stock markets and what are the reactions of CSE for them in the short-run by identifying short-term financial integration.

2 Literature Review

Financial integration research works can be classified into three categories; region-wise, nature-wise and trade relationship-wise. In the region wise integration as an Asian and South Asian country Sri Lanka has received a considerable amount of attention from both local and foreign researchers. Sharma and Bodla (2011) investigates the financial integration in South Asian region. They have identified that the Indian, Pakistan and Sri Lanka Stock markets are not integrated implying that diversification benefits are available for foreign investors among these markets. Perera and Wickramanayake (2012) also analyze the financial integration among India, Pakistan, Bangladesh and Sri Lanka. This research concludes that both stock and bond markets of these countries are cointegrated.

Increased economic integration among countries creates a growing interest among researchers to identify the financial integration with trade partners. Some researchers believe that strong trade linkages among countries can create a considerable impact on their stock markets and others argue that trade linkages among countries have no impact on their stock markets. Elyasiani, Perera and Puri (1998) investigate the interdependence between stock market of Sri Lanka and its trading partners; US, Japan, India, Hong Kong, South Korea, Taiwan and Singapore. This research concludes that impacts of trade partners on Sri Lankan stock market is negligible and it behaves independently according to its own internal factors and forces.

Some researchers have conducted their research works on financial integration with relevant to the nature of the stock markets such as developed, emerging and frontier markets. In the existing literature there are many financial integration researches for developed and emerging markets. Alvi and Chughtai (2014) test the co-movement of Pakistan stock market with developed stock markets. This research concludes that Pakistan stock market does not have financial integration with selected developed stock markets.

According to the findings of this literature study, very few researchers have paid their attention on the Asian Frontier Markets in terms of financial integration (Thomas, Kashiramka and Yadav, 2017). Further, a short-term analysis of financial integration among Asian Frontier Markets is also an untouched area in the existing literature. Therefore, this research is intended to fill this research gap by measuring both long-term and short-term financial integration of CSE with developed stock markets.

3 Problem Statement and Research Questions

There are limited number of researches for the financial integration of Asian frontier stock markets (Sri Lanka, Bangladesh, Vietnam). An analysis of integration of these frontier markets with developed and emerging markets provides information for investors from developed stock markets to take their international portfolio diversification decisions. Therefore, it is important to identify the financial integration of Colombo Stock Exchange with developed stock markets by addressing the following research questions;

1. Does CSE financially integrated with developed stock markets?
2. Is there any diversification prospect between CSE and developed stock markets?

4 Objectives

The first objective of this research is to examine the long-term financial integration relationships between CSE with developed stock markets and second objective is to examine the short-term financial integration relationships between CSE and developed stock markets. Further, it observes the diversification prospects between CSE and developed stock markets.

5 Research Methodology

This research investigates the long-term and short-term financial integration of CSE with developed stock markets. The Morgan Stanley Capital International (MSCI) market classification framework categorizes global stock markets as developed, emerging and frontier markets. According to this classification Sri Lankan stock market is a frontier market. Further, this research selects six developed stock markets (USA, UK, Japan, Hong Kong, Canada and Germany) based on the highest market capitalization (2017) criteria among all 23 developed stock markets and use the daily closing stock index prices of each stock market in terms of their domestic currencies for a period of eight (8) years from 1st January 2010 to 31st December 2017. Then use the Occam's razor technique to manage missing data and convert the entire data set into natural logarithm form to smooth the fluctuation and easy interpretation purposes. This research checks the stationarity of each data series using Augmented Dicky Fuller (ADF) Test. Based on this result to measure the long-term relationships this study employs the Johansen's Cointegration Test. Impulse Response Function Analysis uses to identify the short-term integration relationships between CSE with other developed stock markets.

6 Findings

The first objective of this research is to examine the long-term financial integration relationships between CSE with developed stock markets. This research uses the Pair-wise Johansen and Juselius Co-integration Test and table 1 represents the results in terms of both trace and maximum eigen value statistics. In the situations where trace statistics or maximum eigen values statistics are greater than the critical values, the null hypothesis of there is no cointegration relationship will be rejected. As per the table except the SL - USA case, all other cases exhibit both trace and maximum eigen value statistics are greater than the critical values. In Sri Lanka and USA case, maximum eigen value statistics is higher than the critical value even though the trace statistic lower than the critical value by a little margin. These findings reveal the financial integration between CSE with developed stock markets.

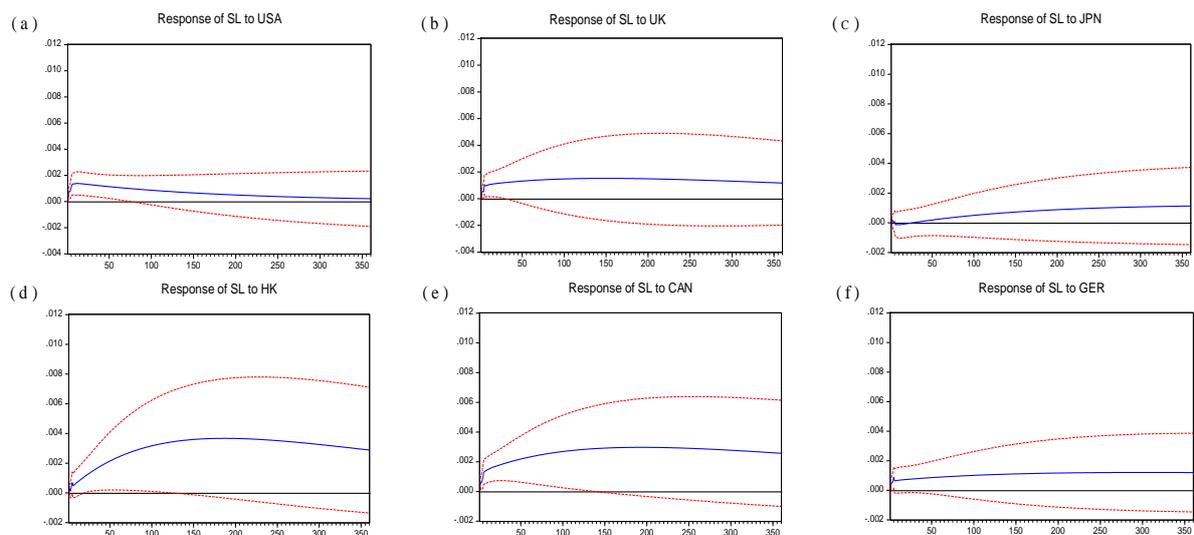
The second objective of this research is to analyse the short-term relationships of CSE and developed stock markets using Impulse Response Function Analysis. According to the findings of this analysis as per the Figure 1, stock price shocks arise in USA initially create a rise in Sri Lankan stock prices and then starts to gradually decline. Sri Lankan stock prices immediately increase for shocks in UK stock price indices and then flattens out and decrease at a very low rate. The response of CSE to shocks in Japanese stock price indices exhibits a sudden decrease in stock price indices and then after 1-2 months it starts to gradually increase. The reactions of Sri Lankan stock prices to shocks in stock price indices of Hong Kong and Canada exhibits a similar pattern. They initially increase at a higher rate and after 5-6 months tend to gradually decrease. Sri Lankan stock prices immediately increase for shocks in Germany stock price indices and after 6-7 months it flattens out.

Table 1: Cointegration test results

Country	No. of hypothesized CE(s)	Trace test			Max. Eigen value test		
		Test stat	Crit. value	Prob.	Test stat	Crit. value	Prob.
USA	None	14.986	15.495	0.059	14.945	14.265	0.039*
	At most 1	0.041	3.841	0.839	0.041	3.841	0.839
UK	None	17.943	15.495	0.021*	15.259	14.265	0.034*
	At most 1	2.684	3.841	0.101	2.684	3.841	0.101
JPN	None	15.791	15.495	0.045*	15.705	14.265	0.029*
	At most 1	0.086	3.841	0.769	0.086	3.841	0.769
HK	None	22.289	15.495	0.004*	19.857	14.265	0.005*
	At most 1	2.433	3.841	0.118	2.433	3.841	0.119
CAN	None	19.452	15.495	0.012*	17.743	14.265	0.014*
	At most 1	1.709	3.841	0.191	1.709	3.841	0.191
GER	None	16.139	15.495	0.040*	15.606	14.265	0.030*
	At most 1	0.532	3.841	0.466	0.532	3.841	0.466

Source: Author compiled based on E views 8 Johansen's Cointegration test results

Figure 1: Impulse Response Function Analysis Graphs



Source: Author compiled based on E views 8, impulse response Analysis multiple graphs

7 Conclusions

The pair-wise cointegration test results conclude that there are long-term integration relationships between Sri Lanka and other developed stock markets. It indicates that there are no potential benefits of international portfolio diversification in CSE for investors in USA, UK, Japan, Hong Kong, Canada and Germany. Because these integration relationships are due to the similar trend over the time and they reach to an equilibrium point in the long-run where there are no differences in stock price indices. The results of Impulse Response Function Analysis reveal Sri Lankan stock prices are actively responds to shocks in stock prices of developed stock markets in the short-term. Therefore, findings of both Cointegration test and Impulse Response Function Analysis reveal that the CSE has both a long-term and short-term financial integration relationship with the selected developed stock markets.

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Causality between FDI and Financial Development in South Asia

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Keywords: FDI, Financial Development, South Asia, Granger Causality

1 Introduction

With globalization in 1990s foreign direct investment (FDI) started to play a significant role in promoting economic growth in developing countries. FDI helps to boost economic growth of the host country via solving its socio-economic problems like unemployment, balance of payment deficit, foreign exchange scarcity, poor technological ability and lack of capacity. Moreover, FDI brings several positive effects to the country like new technology, new management and marketing practices, better resource utilization, low global market prices, development of infrastructure, healthy relations with international market and tourism development. FDI also helps to remodel the national economy of a developing country. Even though there are numerous benefits of FDI to the host country, domestic market conditions are vital to reap such benefits. Favorable policy environment, productive assets, infrastructure, healthy investment climate and developed financial markets are some of the pre-conditions that should exist in a host country in order to attract more and high quality FDI inflows.

2 Literature Review

Financial development, one of the pre-conditions of FDI, is heavily discussed in the empirical studies with regard to FDI and economic growth. Alfaro, et al., (2004) among many others have discovered that a well-functioning financial market would attract more FDI and boost economic growth. On the other hand, Henry (2000) and Desai, et al (2006) have suggested that when FDI increase, it will promote financial intermediation through financial markets of the host country and enhance economic growth. Hence, in general, the relationship between FDI and financial development has been explored in the context of economic growth. Therefore, there is a lack of literature with regard to a direct relationship between FDI and financial development. Even the extant literature with regard to this direct relationship has provided mixed results. Some scholars have found a bidirectional relationship between FDI and financial development while some have found a unidirectional relationship running from financial development to FDI. Some of the empirical studies on the relationship between FDI and financial development are not region specific where as some studies are region specific. When the literature review is widened to evaluate studies on FDI and financial development in South Asia, it is revealed that the link between FDI and financial development in South Asia has been explored only in the context of economic growth. None of the studies has focus on the direct relationship between FDI and financial development in the region. Hence, this paper aims to fill this gap in the literature.

3 Problem Statement and Research Questions

This study is intended to examine the direct relationship between FDI and financial development in South Asia. Hence, the study specifically attempts to answer the following question;

“Is there a causality between FDI and financial development in South Asia?”

4 Objectives

- The primary objective of the paper is to investigate the unidirectional and bidirectional causality between FDI and financial development in South Asia.
- The secondary objective of the paper is to examine the cross-sectional dependence of countries.

5 Research Methodology

Annual data was collected using ‘World Development Indicators’ database over the period of 1987-2016 for five South Asian economies, namely; Bangladesh, India, Sri Lanka, Pakistan and Maldives. Due to many missing points of data; Afghanistan, Bhutan and Nepal were excluded from the study. Three variables were used for the study. FDI is indicated by foreign direct investment inflows (US\$) (FDI) and two commonly used measures of financial development are employed. They are domestic credit to private sector as a percentage of GDP (DCY) and broad money supply (M2) as a percentage of GDP (M2Y).

Before testing the causality, the cross-sectional independence among series is tested using the Lagrange multiplier (LM) adjusted test provided by Pesaran, et al. (2008). Next, the integration levels of the variables (stationarity of variables) is analyzed using the CIPS unit root test which regards cross-sectional dependency. The causal interaction between foreign capital inflows and financial sector development is investigated using the causality test of Dumitrescu and Hurlin (2012), an improved form of the Granger non-causality test that regards heterogeneity. This test has been used in many studies to detect the causality between variables in panels. The procedure of Dumitrescu and Hurlin (2012) test to determine the existence of causality is similar to that of Granger, which is, testing the significant effects of past values of x on the present value of y . The underlying regression is given below where $X_{i,t}$ and $Y_{i,t}$ are the observations of two stationary variables for individual i in period t .

$$Y_{i,t} = \alpha_i + \sum_{k=1}^K \gamma_{ik} Y_{i,t-k} + \sum_{k=1}^K \beta_{i,k} X_{i,t-k} + \varepsilon_{i,t} \quad \text{with } i = 1, \dots, N \text{ and } t = 1, \dots, T \quad (1)$$

The null hypothesis which corresponds to the absence of causality for all individuals in the panel can be defined as follows.

$$H_0: \beta_{i1} = \dots = \beta_{ik} = 0 \quad \forall i = 1, \dots, N \quad (2)$$

In this paper, there are three variables namely; FDI, DCY and M2Y. Since the primary objective of this study is to investigate the unidirectional and bidirectional causality between FDI and financial development two pairs of null hypotheses are constructed. Moreover, to test the causality between the two financial development indicators a third pair of null hypotheses is constructed as well.

1 ... H_0 : DCY does not granger cause FDI

2 ... H_0 : M2Y does not granger cause FDI

3 ... H_0 : M2Y does not granger cause DCY

H_0 : FDI does not granger cause DCY

H_0 : FDI does not granger cause M2Y

H_0 : DCY does not granger cause M2Y

6 Findings and Conclusions

The first step in this empirical analysis is to examine the cross-sectional independency among the countries. This is the secondary objective of the study. The LM adjusted test statistic is 5.359 with a p-value of 0.000. Therefore, the null hypothesis—there is cross-sectional independency—is rejected at a 1% significance level for LM adjusted test statistic revealing a cross-sectional dependency among the series. It means that the five countries are interrelated. In other words, one shock in one country affects other four countries studied.

The next step in the study is to apply the cross-sectional augmented IPS (CIPS) test in order to analyze integration levels of the variables. The CIPS test takes cross-sectional dependency into consideration. The findings, as presented by Table 1, revealed that panels are nonstationary at level but stationary at first difference for all three variables. Hence $d(\text{FDI})$, $d(\text{DCY})$ and $d(\text{M2Y})$ are $I(1)$.

Table 1. CIPS Panel Unit Root Test.

Variables	Constant (p-value)	Constant + Trend (p-value)
FDI	-0.978 (0.164)	0.365 (0.642)
d(FDI)	-6.265 (0.000)***	-5.067 (0.000)***
DCY	-0.340 (0.367)	0.223 (0.588)
d(DCY)	-5.677 (0.000)***	-4.681 (0.000)***
M2Y	0.524 (0.700)	1.670 (0.953)
d(M2Y)	-5.786 (0.000)***	-4.795 (0.000)***

Note: *** significance at 1% level.

Finally, the primary objective of this study, which is investigating causality between FDI and financial development is tested using Dumitrescu and Hurlin (2012) test. The results from Table 2 show that there is a unidirectional direct relationship from the domestic credit to private sector (proxy for existing financial development) to inward FDI flows since the null hypothesis is rejected at 1% significance level. However broad money has no direct relationship with FDI inflows. On the other hand, there is a unidirectional direct relationship from broad money with the domestic credit to private sector because the null hypothesis is rejected at 5% significance level. Moreover, findings indicate that FDI does not cause either domestic credit to private sector or broad money. That is, the study reveal FDI does not cause financial development.

Table 2. Dumitrescu and Hurlin (2012) Causality test results.

Null Hypothesis	W-Stat	Zbar-Stat.	Prob.
$\Delta \text{DCY} \rightarrow \Delta \text{FDI}$	15.6620	4.37653	1.E-05***
$\Delta \text{FDI} \rightarrow \Delta \text{DCY}$	4.10018	-0.81173	0.4169
$\Delta \text{M2Y} \rightarrow \Delta \text{FDI}$	5.50251	-0.18245	0.8552
$\Delta \text{FDI} \rightarrow \Delta \text{M2Y}$	4.19320	-0.76999	0.4413
$\Delta \text{M2Y} \rightarrow \Delta \text{DCY}$	10.7717	2.18203	0.0291**
$\Delta \text{DCY} \rightarrow \Delta \text{M2Y}$	4.93293	-0.43804	0.6614

Note: *** significance at 1% level and ** significance at 5% level

Since domestic credit to private sector is a better indicator of financial development in developing countries it seems that financial development has an important role in attracting FDI inflows. This discovery is consistent with the general trend in the relevant literature where there is a unidirectional relationship from financial development to FDI. This finding confirms the theoretical argument by Henry (2000) on the link between FDI and financial development. The argument says that foreign

investors may perceive a relatively well-functioning financial market as a sign of vitality, openness on the part of country authorities and a market-friendly environment, thereby increasing FDI to the host country. Developing countries in South Asia have brought forward many economic reforms in order to attract more FDI. Financial sector reforms have been given a major focus since policymakers thought that a well-developed financial sector is a prerequisite for improving FDI inflows.

This paper concludes that a well-developed financial system leads a nation to attract more inward FDI flows. Hence financial development is an important prerequisite of FDI attraction for a developing region like South Asia. However, this study reveals that FDI inflows have no significant effects on the development of financial sectors for this sample of countries, although a positive or negative impact can be seen theoretically.

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Impact Of Civil Disturbances On Stock Market Behavior : A Study Of Colombo Stock Exchange Sri Lanka.

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Keywords: Event study, Abnormal return, Efficient market, Mean adjusted return model

1 Introduction

Colombo Stock Exchange plays a major role in contributing much towards economic development in Sri Lanka and it is the organization responsible for the operation of the stock market in Sri Lanka. The volatility of stock market had increased since political distress in the country began to be more destructive during the last 3 decades. Different viewpoints about political issues in Sri Lanka has caused a disharmony among Sri Lankan people and it could be caused for some civil disturbances. The political events adversely affect the confidence of both domestic and foreign investors as the volatility of stock market is increased which lead to the uncertainty of the investment expected cash flows (Kongprajya, 2010). Civil disturbances are part of political events lead to uncertainty of the investment. Then civil disturbances are crucial factors influencing the operation of a country's stock market. Therefore it is crucial to research and find the impact of civil disturbances on stock market. Present study is motivated to provide some ideas about the relationship between share prices of listed companies and civil disturbances.

2 Literature review

In an efficient market, changes in prices are expected to be random and unpredictable since stock prices are expected to reflect all available news. According to the Fama (1970) efficient market hypothesis states that at any given time and in a liquid market, security prices fully reflect all available information. Kongprajya (2010) examines impact of political news on Thai stock exchange and it proved that returns appear to be negative on the day in which unfavorable news was released and the opposite occur on the day in which favorable news was released. Moreover many empirical works have examined the effect of political risks on certain industries and the country's stock market. Nazir, Younus, Kaleem and Anwar investigate the relationship between uncertain political events and Pakistani Stock Markets. The empirical result shows that political events have an impact on the Karachi Stock Exchange (KSE) returns. Moreover, the paper derives from the results that the KSE is inefficient for a short span of time, after 15 days KSE absorbs the noisy information. A few studies have been conducted in near past, related to the impact of political events on share price in Sri Lanka. Ramesh and Rajumesh (2015) examine market efficiency and market reaction to political events in Colombo Stock Exchange (CSE) using a sample of 40 major political events of the emerging market of CSE which represents different industry sectors from 2008 to 2012. This study therefore sought to test the impact of civil disturbances on stock market return in Sri Lanka.

3 Problem Statement and Research Questions

Since a huge number of civil disturbances are staged in the country throughout the year, there is a strong need to address the effect of civil disturbances on stock market. This study is to examine in the extent which a company's stock price would reflect the civil disturbances according to the semi strong form efficiency. Semi strong form mentioned that stock prices reacts so fast to all public information. Information is the key to the determination of the share prices and the key issue of the efficient capital market (Keane, 1986). An implication of a semi – strong efficient market is that no abnormal returns can be made from this information because adjustments had already been done in the stock price. The market has already been adjusted. Therefore, the only way to outperform the market in this case would be by using inside information. Therefore, in the present study, is

conducted to find out that how far the political information reacts on share prices. Accordingly, this research study addressed the following research question:

“What was the reaction of stock returns at the Colombo stock Exchange to the civil disturbances in Sri Lanka?”

4 Objectives

The purpose of this study is to measure the abnormal change in the ASPI returns due to the civil disturbances over the period of time. To achieve this, the research is conducted on the following objectives.

1. To examine the impact of civil disturbances on stock market return
2. To empirically test Efficient Market Hypothesis (EMH)

5 Research Methodology

This study is confined to the 53 news events that are related to civil disturbances published over the time period from January 2014 to February 2018. The selection of the events is made by examining the daily editions of online news articles by searching relevant keyword combinations such as protests, strikes, sit ins, activists, demonstration while analyzing the intensity of an event. Data on all share price index was collected from CSE’s C-D. This study used event window of 15 days prior to the event and 15 days after the event. The estimation period is 120 days from $t = -135$ to $t = -15$. The test period is 31 days from $t = -15$ to $t = +15$, with $t=0$ corresponding to the date of event. The event date is the date on which the effect of civil disturbances are presumed to take place.

This study uses the ‘Standard Event Study Method’ to estimate the announcement effect of civil disturbances such as abnormal returns (AR), average abnormal returns (AARs) and cumulative average abnormal returns (CAARs) around event date. The test requires predictions for expected return for the test period in order for the calculation of abnormal returns, if any. In this study market model is used for the estimation of expected returns and it has been considered as an efficient model for the analysis of market indexes. The Market Model (MM) has probably been the most popular benchmark employed in event studies (Strong 1992).

The model considered that actual return/observed return of the market on day t of the event window, $R_{it} = \frac{P_t - P_0}{P_0}$ and the expected return of the index as,

$$(R_{it}) = \alpha_i + \beta_i * R_{mt} + \mu_t \quad \text{where, } R_{mt} \text{ is observed arithmetic return on market portfolio (proxy: All Share Price Index – ASPI), } t \text{ is the number of days in the estimation period and } \mu_t \text{ is the independent disturbance term at time } t.$$

The abnormal returns of a market index are the difference between the actual and expected return on a given period of time where AR_{it} is the abnormal return or expectation error of the market index in day t in the event window,

$$AR_{it} = R_{it} - E(R_{it})$$

In the next step, an Average Abnormal Return (AAR_t) across the sample is calculated for each day, 15 to +15 days in order to analyze the behavior of abnormal returns. Calculation of the AAR, known as mean abnormal return is calculated as follows:

$$AAR_t = \frac{1}{N} \sum_{t=1}^N AR_t \quad \text{Where, N is the number of events in the sample.}$$

Accordingly, significance of *AAR* is tested statistically using the test statistic of the form:

$$t = \frac{AAR_t}{SE(AAR_t)}$$

Where, *SE* is the standard error calculated as follows;

$$\sigma^2(AR_t) = \frac{1}{N-1} \sum_{t=1}^N (AR_t - AAR_t)^2$$

$$SE(AAR_t) = \frac{\sigma(AR_t)}{\sqrt{N}}$$

6 Findings and Conclusions

Table 1

Event Date	T Values
-15	-0.65165
-14	-2.12352**
-13	-0.3825
-12	0.4835
-11	-0.46178
-10	0.679238
-9	2.955936***
-8	2.94964***
-7	2.687172***
-6	0.393875
-5	2.171622**
-4	0.741115
-3	2.260734**
-2	-0.55427
-1	1.817666
0	1.293919
1	1.323232
2	0.782003
3	0.886021
4	1.437786
5	0.762114
6	0.638463
7	1.81757
8	1.310326
9	1.512285
10	1.880087
11	0.464472
12	0.831881
13	0.79812
14	0.826214
15	-0.20296

Note: ***,** Significance at 1%, 5%, and respectively.

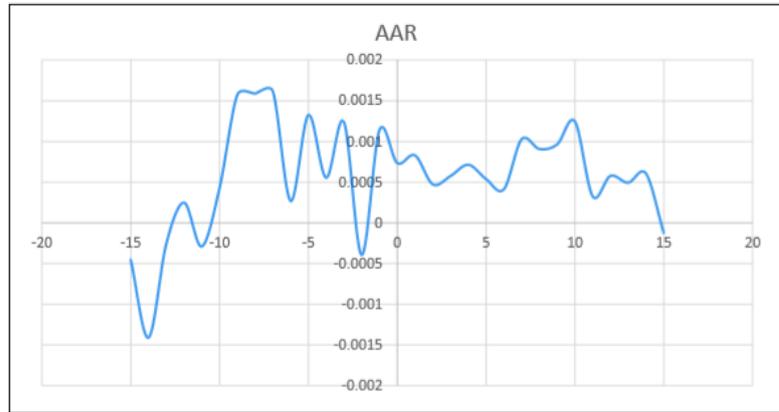


Figure 1: Abnormal Returns around the Event Date

Source: Author complied

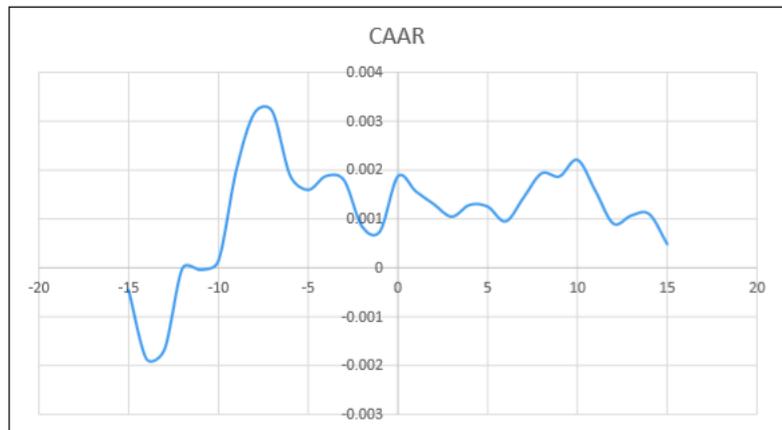


Figure 2: CAAR around the Event Dates

Source: Author complied

According to the t values, it shows that the impact of some of civil disturbances are significant while some of them are insignificant. Table 1 shows the significance level of an event at event days. The level of significance is used 1% and 10 %. There is not statistically significant in the post event period. As a result, AARs are significantly lower during the pre-event period. This study also finds positive magnitude of the share price reaction of AARs on day 0 is 0.0007, this is not statistically significant at 1% or 5% level. The results implied that, shareholders receive a significant gain of 0.0007 percent on

the day of event. This implies that the market do not absorbs quickly the adverse signal of the civil disturbances. According to the results, this trend is not clearly indicates that major unfavorable incidents provide stronger negative signal to the firms and investors. As figure 1 shows that AAR sharply fluctuated over the event window. Although the market participation expectation is that stock price should be decreased on the day in which bad news has been announced, the above Figure 1 also shows that value of AARs has irregular yielding both positive and negative before and after the event day. The change in the positive and negative signs suggested that there is no significant impact of civil disorders on stock market return. The behavior of the stock price is highly fluctuating in stock market in the study period. This can be further depicts by the figure 2. Evidence depicts the CAARs during the day -15, 0 period is 0.0018 and the CAARs for the (day 0, +15) period is 0.0011. These positive CAARs during the post event period disclosures that civil disturbance do not convey information. Finally, CAARs decreased to 0.0004 over the window period of 31 days. Although this new unfavorable information should be a negative signal to the investors and stock market, it has created positive return. This study found stock market positively reacts to political incidents. The trend of positive returns is more pronounced around the political event date. Therefore, the evidence of this study does not provide strong support for the semi strong form of efficient market. The result of this study is inconsistent with EMH. This study addresses some major empirical issues such as How and when does the Sri Lankan stock market respond to civil disturbances, Does Sri Lankan stock market react quickly or slowly to civil disturbances and What does happen on the event date. The empirical results for the civil disturbances does not provide strong significant negative average abnormal returns on the event day and this findings does not support the signaling hypothesis, thus, civil disturbances give positive information to the Colombo Stock Exchange (CSE). According to the events considered, the behavior of the stock price is highly fluctuating in stock market in the study period and it have shown that Sri Lankan stock market does not respond significantly to the civil disturbances. According to the result of analysis, we can conclude that the civil disturbances has no significance impact on stock market.

One of the limitations in this study is that it does not account for exogenous shocks that affect the stock market behavior, other than selected news. During the time period investigated, factors such as increase in global oil prices and world stock market crashes could have had a spillover effect on the performance of the CSE. Hence, further research controlling for other exogenous factors, should be carried out in order to capture the impact of civil disturbances, on stock prices. And also a huge amount of events took place in a small period of time. The starter of another event forced people to forget the previous one. The reasons for this immunization can be explored further by academic researchers which do not fall in the scope of current study. Furthermore, future research can focus on other related events which are ignored by the present study due to technical reasons and it can be applied more sophisticated statistical analysis method which may generalize the results of event study methodology.

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The Effect of risks and risk management on the financial performance of the Sugar industry of Sri Lanka

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Abstract

Well managed risks is an essential for financial performance of sugar industry sector in Sri Lanka. The objective of this study is to examine the effect of risks and risk management practices on the financial performance of the sugar industry in Sri Lanka. Mail two sugar factories, Pelwatte and Sevanagala, were selected as case studies. The study used both primary and secondary data for the analysis and a questionnaire was distributed to 80 managers of the Palawatte Sugar Company. A response rate of 90% was reported. Apart from that interviews were conducted among senior members of the industry. Secondary data was collected from the annual financial statements of the company for the sample period from 2012 to 2018. Regression analysis was employed to identify the relationship between risks and the financial performance of the sugar industry. Risks were identified as cultivation, credit risk from farmer loans, market pricing, environmental changes, foreign and political risks. Risk management was studied under four main categories including risk identification, Risk assessment, Risk mitigation and risk management implementation and monitoring. Study concludes that there is a negative relationship between financial performance and the Cultivation, environmental risk, pricing risks as well as a positive relationship with Foreign, credit and political risks for Model 1. Result for Model 2 concludes that there is a negative relationship between the risk identification and the financial performance of the Sugar industry of Sri Lanka. Further, it concludes that there is a positive relationship between risk assessment, risk mitigation, risk implementation and financial performance of the Sugar industry.

1 Introduction

Sri Lanka is a country where Gross Domestic Product (GDP) is heavily based on the agriculture. Even though Sugar cane farming is not taking a considerable contribution in the agriculture, there is a huge demand for sugar in the country where 90% demand is being fulfilled by imports while the rest 10% is being fulfilled by Pelwatte and Sevanagala sugar factories that are being run under Lanka Sugar Company pvt. Ltd. Ethanol and Molasses are other by-products formed by sugar production and it covers around 40%-50% of domestic Ethanol requirement. Sri Lankan sugar industry faces lot of risks in terms of land cultivation risk with inadequate lands for cultivation and being rain fed is a huge operational risk. Credit facilities given to the farmers were turning in to bad debts is a huge credit risk to the financial industry. Increase in input prices and overhead causes a huge difficulty in terms of pricing risk. Apart from that droughts, elephant attacks etc. act as environmental risk to the industry while the threat from sugar imports has led to the drop in demand for the local production. In addition, changes in political party affect the whole industry since the Sugar factories are fully owned enterprises of the Government. Therefore the changes in political party heavily effect on the industry. Government has taken several steps such as fertilizer subsidies and tax on Imports etc., to manage the risks prevailing in the current scenario.

2 Literature Review

Risk is a condition in which there exists a quantifiable dispersion in the possible outcomes from any activity (CIMA, 2005). The rainfall occurrence, pest attacks and diseases will act as biological processes in crops and livestock farming. Apart from that the breakdown of farming equipment will also lead to a low yield is a huge cultivation risk (Kahan, 2008). Agricultural financing has a positive relationship with the country's economic growth (Khan, 2014). However, when the financial institutions are unable to provide the necessary financing, farmers will face a risk of gaining the expected yield from the crops (Jaffee, 2010). The majority of crops are facing a high variability in

prices than the yield which means stabilizing the prices will be an effective strategy to reduce the income risk of cultivation (PK, 2012). Farmers face potential losses due to political unrest, conflict, institutional collapse, suddenly applied rules and regulations and policy changes (Sen, 2010). Risk management is a process of understanding and managing the risks that the entity is inevitably subject to attempting to achieve its corporate objectives, for management purposes. The risk management process can be done using ERM (Enterprise Resource Management) model as per the Committee of Sponsoring Organizations of the Tread way Commission (COSO) in 2001 (CIMA, 2005). Financial performance is the degree to which the financial aims and objectives being met or accomplished and can be measured with a proper financial statements analysis (Shodhganga, 2011). There are several determinants of financial position as in Profitability, Capital structure and Liquidity (Bachimeg, 2017).

3 Problem statement and the research question

1. Will the risks faced by Sugar Industry in Sri Lanka have a considerable impact on the financial performance?
2. How the risk management effect on the financial performance?

4. Research objectives

The objectives of the study are:

1. To examine the existing risks faced by Sri Lankan Sugar Industry
2. To examine the effect of risk on the financial performance of the Industry
3. To examine how the risk management procedures effect on the financial performance of the industry.

5. Research methodology

As emphasized by Dewasiri et al. (2018a) this is a mixed methods study. Accordingly, both qualitative and quantitative data has been collected by using primary and secondary data collection methods as emphasized by Dewasiri et al. (2018b) and Dewasiri and Weerakoon (2017). The sample was 72 managerial staff of Lanka Sugar Company and interviews were conducted among the senior management while a questionnaire was distributed among managerial and executive staff based on risks faced by the company. Apart from that Annual reports, interim financial report and newspaper publications were takes as secondary data. Two Regression models were employed in research analysis.

Model 1- Relationship between Risks and financial performance

H₀: There is no significant relationship between the risks and the financial performance

H₁: There is a significant relationship between the risks and the financial performance

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$$

Y	Financial performance (ROIC)
X ₁	Operational/cultivation risk
X ₂	Credit risk
X ₃	Foreign risk
X ₄	Political risk
X ₅	Environmental risk
X ₆	pricing risk
ε	Error term

Model 2- Relationship between the risk management and financial performance

H₀: There is no significant relationship between the risk management and the financial performance

H₁: There is a significant relationship between the risk management and the financial performance

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Y	Financial performance (Measured using ROIC)
X ₁	Risk identification
X ₂	Risk assessment
X ₃	Risk mitigation
X ₄	Risk management implementation and monitoring
ε	Error term

6. Findings and conclusions

Relationship between Risks and financial performance

Regression results for Model 1 are shown in Table 1. According to the study findings, the industry faces six major risks such as cultivation risk, credit risk, foreign risk, political risk, environmental risk and pricing risk. There is a significant relationship between the risks and the financial performance which is tested based on the hypothesis testing.

Table 1

Regression Results: Risk and Financial Performance (Model 1)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	0.172	0.141		1.220	0.227
Cultivation risk	-0.033	0.019	-0.199	-1.726	0.089
Credit risk	0.006	0.017	0.045	0.340	0.735
Foreign risk	0.030	0.011	0.371	2.696	0.009
Political risk	0.038	0.018	0.246	2.160	0.034
Environmental risk	-0.010	0.014	-0.114	-0.700	0.487
Pricing risk	-0.052	0.030	-0.226	-1.747	0.085

Cultivation risk has a negative impact on the financial performance. The more industry facing cultivation issues, more the profitability falls. When the loans become default, loans are write off as bad debts. Therefore credit risk will effect negatively on the financial performance. However, the results show that there is a positive relationship which can be identified as a limitation of the model occurred due to the low awareness among the respondents on the financial impact from credit or farmer loans which are regarded as a high concern. When considering the foreign risk, there is a huge impact from the imported sugar. However, government taking such as imposing taxes on imports and providing subsidies to encourage the local farmers reduced the risk. Government policies on taxes and subsidies as well as new policies on developing the sugar industry will enhance the local sugar

production which will affect positively on the financial performance. Environmental risk and pricing risk have a major negative impact on the financial performance according to the findings.

Table 2

Regression Results: Risk Management and Financial Performance(Model 2)

Model 1	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.139	0.127		1.093	0.278
Risk identification	-0.102	0.022	-0.782	-4.656	0.000
Risk assessment	0.004	0.030	0.025	0.125	0.901
Risk mitigation	0.024	0.030	0.129	0.793	0.431
Risk monitoring	0.049	0.030	0.295	1.651	0.103

Regression results for Model 2 are shown in Table 2. According to the study findings, the industry risk management process was separated under four steps including risk identification, risk assessment, risk mitigation and risk implementation & monitoring. The model finding depicts that there is a significant relationship between the financial performance and the risk management variables which was tested by the hypotheses created.

Risk identification in this model has a negative relationship with the financial performance which is due to specific reasons. There is no separate risk management committee and this is done by the senior managers where the separate risks are not properly inspected by them. Standards are also not established to identify the risks. Risk assessment and financial performance shows a positive relationship. Even though the impact from some risks such as political risk are not reliably measured, the impact from the farmer loans, droughts, elephant attacks, price fluctuations and issues in the cultivation are measured in terms of monetary terms. Under Risk mitigation, factories have proper insurance coverage as well as sufficient amount of reserves in paying claims during a risky condition. Risk management implementation and monitoring in the stated industry is not happening in a standardized manner and there is no documentation process either. However, there is a better management support towards the action plans developed for certain risks. This helps the industry for a better financial performance.

7. Conclusion

The overall relationship between the financial performance and the total risks were identified as a negative relationship even though there are few deviations in the Beta factors of separate risk variables which is a limitation in the overall model 1. The overall relationship between the risk management and the financial performance derived as a positive relationship from the model 2 and this was tested separately under the four steps of risk management as risk identification, risk assessment, risk mitigation and risk implementation & monitoring.

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The Relationship Between Stock Returns and Trading Volume: Evidence from Colombo Stock Exchange

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1 Introduction

For any economy, investment can be called as the growth engine because without investment there will not be any economic development. The financial markets play a significant role in supplying the financial resources needed for different institutions for investment. Among those different financial markets, the stock market is privileged because it provides the financial resources required by the companies. Furthermore smooth functioning of stock market is important for the development of economy as a whole. Therefore share trading is an important aspect of the economy of any country. Stock Exchange is a place where the share trading is happen i.e. stocks of different companies are bought and sold among different investors.

Colombo Stock Exchange (CSE) is the main stock exchange in Sri Lanka. It is one of the modern exchanges in South Asia, providing fully automated trading platform. There are currently two indices in the CSE; The All Share Price Index (ASPI), and The S&P Sri Lanka 20 Index (S&P SL 20). The Colombo Stock Exchange has 298 companies representing 20 business sectors as at 29th June 2018, with a market capitalization of 2893.7 Bn.

When analyzing about stock markets, stock returns and trading volume can be identified as two main components of stock markets that attract investors. In finance, return is a cash flow on an investment. It comprises any change in value of the investment, and / or cash flows which the investor receives from the investment. Accordingly stock return is the cash flow earned by the investor through investing in the stock. In simple terms trading volume is the amount of securities that were bought and sold during a given trading day. It is a measure of the quantity of stocks that change ownership for a given security. The amount of daily volume on a security can fluctuate on any given day depending on the amount of new information available about the firm, and many other possible factors. Since security returns and trading volume are two key concepts in finance these two variables are intensively used in return-volume relationship analysis. (Karpoff 1987, Pathirawasm and Konarasinghe 2013, Tapa and Hussin 2016)

2 Literature Review

In relation to stock return and trading volume relationship, a number of researchers have attempted to establish the empirical and theoretical structure on this relationship from around 1960's to until present, such as Ying (1966), Crouch (1970), Westerfield (1977), Karpoff (1987), Lee and Rui (2002), Kamath and Wang (2006), Pathirawasam (2011), Hsieh (2014), Tapa and Hussin (2016) and Ahmed (2018). However, in general the stock return-volume relationship is still indefinite. Majority of studies regardless of the econometrical models they have used, reported a positive contemporaneous relationship between stock returns and trading volume such as in Pathirawasam (2011), Hsieh (2014), Tapa and Hussin (2016) and Ahmed (2018). On the other hand, a very few studies haven't supported to that contemporaneous relationship between stock return and trading volume such as in Granger and Morgenstern (1963), Rogalski (1978), James and Edmister (1983) and Harris and Raviv (1993). Then when it comes to the causal relationship between stock returns and trading volume, the empirical evidence on the causal relationship between these two variables is mixed and in some cases, contradictory (Pisedsalasai and Gunasekarage 2007). Because some studies have reported bidirectional causality (Tripathi 2011), and some studies have reported unidirectional causality (Al-Jafari and Tliti, 2013) furthermore there are few studies which have reported that there is no causality between stock return and trading volume (Pathirawasm and Konarasinghe, 2013). As a

result of that, this stock return- volume relationship is still a very interesting field to researchers for investigation in several stock markets.

When it comes to the relevant literature available in different types of stock markets, the relationship between stock returns and trading volume is well researched area in developed markets. But there is comparatively less literature available regarding this relationship in emerging markets as well as in frontier markets. Furthermore, it has been observed that there are very few studies are done in Sri Lankan context to explore the stock returns-volume relationship (Pathirawasam 2011, Pathirawasam and Konarasinghe 2013). Hence there is a gap created by scarcity of previous studies that investigated this relationship in Sri Lankan context. Therefore this study aims to fill that gap by investigating the relationship between stock return and trading volume in CSE.

3 Problem Statement and Research Question

In financial economics, there is much interest in the relationship between stock returns and trading volume. As a result, researchers in this area have examined the return-volume relationship in a variety of contexts by employing a range of analytical techniques. Although this relationship has been investigated for numerous stock markets, as emphasized previously, relatively little work has been conducted on the Colombo Stock Exchange. Furthermore, the relationship between stock return-volume is ambiguous. Results from previous investigations related to this issue are abundant and not consistent. Although the majority of research findings have confirmed the existence of positive contemporaneous relationship between stock return and trading volume (Pathirawasam 2011, Tapa and Hussin 2016), the empirical studies of different stock markets have given mixed results about the causal return-volume relationship (Deo, Srinivasan and Devanadhen, 2008, Ahmed 2018). Therefore the relationship between stock returns and trading volume is still a debated issue. Hence, this relationship still remains as an attractive field for investigation in different stock markets with different perspectives. Even though the interdependencies between stock return and trading volume have been the subject of investigation by many researchers, most of them concentrated on well-developed financial markets and comparatively less empirical studies have been reported from emerging markets and from frontier markets. Given the mixed empirical results especially related to causal relationship in emerging markets and frontier markets context (Pathirawasam and Konarasinghe 2013 and Ahmed 2018), more empirical research is needed to better understand the stock return-volume relationship.

In order to contribute to the above shortcomings, this study examines whether there is a significant relationship between stock return and trading volume in Colombo Stock Exchange.

There are two objectives of conducting this study;

- (1) To examine the contemporaneous relationship between stock returns and trading volume in the Colombo Stock Exchange,
- (2) To test causal relationship between stock returns and trading volume in the Colombo Stock Exchange.

4 Research Methodology

This was an empirical study which was aimed to find out the relationship between stock returns and trading volume in Colombo Stock Exchange by using statistical tools. This study focused on the companies listed at the CSE and uses index data for the period of January 2010 to March 2018. Hence time series data was used for this study. The target population of this study comprised all the companies listed at the CSE. This study considered a sample period of January 2010 to March 2018 and the sample of data used in this study included daily stock price index (all share price index) and trading volume of all the companies for that period. In order to identify whether there is a significant

relationship between stock return and trading volume, stock return data and trading volume data was required. Daily prices of All Share Price Index and daily trading volume data were captured from January 2010 to March 2018. Thus secondary data was used for this research. That data was collected from the CSE data library and it was the main source of quantitative data.

Stock return was calculated using stock prices and also percentage change of trading volume data was calculated. Then data was analyzed in order to test whether there is significant contemporaneous and causal relationship between stock return and trading volume. After doing preliminary analysis and stationarity test, simple regression analysis was used to test contemporaneous relationship and Granger causality test was employed to test causal relationship. Accordingly Ordinary Least Squares Regression found a significant positive contemporaneous relationship between stock return and trading volume. Granger Causality test was used to analyze whether trading volume causes stock returns, or vice versa. The results of Granger Causality test demonstrated a strong evidence of stock returns Granger cause trading volume.

5 Findings and Conclusions

Thus from the analysis of data, the study has concluded that there is a significant positive relationship and unidirectional causal relationship between stock return and trading volume in Colombo Stock Exchange. That unidirectional causal relationship exists from stock return towards trading volume. Therefore results showed that stock return influence volumes of stocks traded in Colombo Stock Exchange, but volume levels do not influence stock return in the market. Thus stock return seems to contribute some information to investors when they make investment decisions. Finally it was concluded that there is a significant relationship between stock return and trading volume in the Colombo Stock Exchange. Understanding this relationship is very much important since it can help the investors and traders in making investments decisions. Thus, testing this relationship statistically and get an understanding the consequences will be useful for managers of companies in related to their decision making. So findings of this study are important in both investors' point of view and company's point of view. Furthermore these findings can be used by government and other policy makers in order to get broader understanding about stock return volume relationship in the Colombo Stock Exchange.

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